Canada’s GHG Emission Targets and the Role of Transportation

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Louis Thériault
Vice President, Public Policy, The Conference Board of Canada
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Overview

GDP & Road Transport Emissions

Available Technology & Challenges

The Future of Transport
Emissions Drivers

GHG emissions intensity has decreased, yet total emissions have increased

- Population = Passenger kms
- GDP = Tonne kms
GDP & Road Transportation Emissions

Mt CO$_2$e (left axis), Billions 2007 Chained CAD $ (right axis)

Available Technology & Challenges

**Natural Gas Vehicles**
- Lower energy density than traditional fuels
- Liquefied natural gas requires a liquefaction plant

**Biofuels**
- Higher concentrations require specialized engines
- When compared to traditional fuels, may exhibit poorer performance in cold weather
- Lower energy density than traditional fuels

**Liquefied Petroleum Gas Vehicles**
- ICE vehicles must be converted
- Higher purchase cost than ICE vehicles
- Lower energy density than traditional fuels
Available Technology & Challenges

Electric Vehicles

- Travel range is shorter than ICE vehicles
- Higher purchase cost than ICE vehicles
- AC charging takes several hours

Fuel Cell Vehicles

- Refuelling infrastructure is not widely available
- Higher purchase cost than ICE vehicles
The Impact of Electric Vehicles

Mt CO$_2$e Reduction (Left Axis), % Share of On-Road Cars (Right Axis)

Source: The Conference Board of Canada.
The Future of Passenger Transportation

Mt CO$_2$e

Source: The Conference Board of Canada.
The Future of Freight Transport

Mt CO$_2$e

Source: The Conference Board of Canada.
The Complete Picture
Mt CO$_2$e

Source: The Conference Board of Canada.
The Path to a Low Carbon Future for Road Transport

Technology improvements are necessary, but are not enough

Behavioural changes are necessary to close the remaining gap

We must be ambitious, bend cost curves, and send policy signals
The Government’s Toolkit

- Subsidies & Incentives
- Regulations & Standards
- Landuse & Transportation Planning
- Research & Development
- Information Campaigns